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ABSTRACT

The brochure describes an eleventh and twelfth grade interdisciplinary course in environmental education taught at Lansdowne Senior High Baltimore, Maryland. The major objective of the course is to create realistic awareness of environmental conditions. Teaching techniques used include individual and group projects, which are determined by students and teachers for each term. During the three years the Society, Environment, and Science (S.E.S.) course has been taught, the following individual requirements have been agreed upon by students and teachers: 1) to work within the framework of an individual committee; 2) to be responsible for reading of germane books and articles; and 3) to construct case studies involving situations within the environment. Committee areas from which a student can choose are air, water, population, survey, commercial law, and public relations. Each committee must make an audiovisual presentation concerning an environmental situation, invite a guest to speak to the class about an environmental concern, plan a field trip to a place having environmental interest, and conduct a study of a laboratory community within the framework of the committee purpose. The committee presents a final community report, which is oftentimes circulated to citizens of the community. The most important accomplishment of the S.E.S. program is increased awareness of environmental concerns among the young people. (Author/RM)

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SHARRYL HAWKE
Writer
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PROFILES OF PROMISE are descriptive brochures that highlight innovative social studies and social education practices, which teachers and administrators can easily adapt to their own classrooms or schools.

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SOCIETY ENVIRONMENT SCIENCE

John Wright has just completed a new kind of course. He had two teachers for the course, but no textbook. Sometimes, instead of going to his regular classroom, he went to the Patapsco River and the local sewage treatment plant. John didn't take a final exam, but he did visit a local industrialist to tell him about a water study which revealed that his plant might be responsible for some of the pollution in a nearby stream.

John Wright is a fictitious but typical student in a course called Society-Environment-Science, usually referred to as S.E.S. For the past three years, S.E.S. has been taught at Lansdowne Senior High, near Baltimore, Maryland. Eleventh and twelfth graders who have completed a biology and a social studies course are eligible to take S.E.S. as an elective. A student receives one-half a credit for completion of the course and he may apply the credit as either a science or social studies requirement. The course can also be taken for two semesters.

Society-Environment-Science was originated, implemented, and continues to be taught by two Lansdowne teachers, Thomas Fort, Chairman of the Social Studies Department, and Benjamin Poscover, Chairman of the Science Department. The idea for the interdisciplinary course was the result of an institute attended jointly by the teachers at the Biological Sciences Curriculum Study in Boulder, Colorado, during the summer of 1970. At the Boulder conference, teams of teachers were trained to teach S.E.S. materials, and it was there that Poscover and Fort drew up the basic structure for their course. However, in implementing the course the teachers have relied heavily on student interest and feedback to determine the direction the class takes each semester. S.E.S. is offered within the school's regular academic curriculum and has received no special funding.

Before developing the S.E.S. course, Poscover and Fort felt that "... students had an awareness of environmental problems, though in some instances it was unrealistic and distorted." Consequently, their purpose was not so much to "create awareness" as to "create realistic awareness" of environmental conditions. They set about helping students realize some of the social implications or biological problems by illustrating the "interrelations of people, number of people, needs of people, expectations of people, and action as these entities relate to the individual's life style."

The teachers felt the best way to create realistic awareness was to involve students in environmental concerns. So Fort and Poscover designed a course in which student responsibility would be two-fold: 1) each student would be individually responsible for learning about general environmental issues; 2) each student would participate in a committee project to explore firsthand a local environmental situation. At the beginning of each semester, students and teachers together determine the specific individual and committee expectations for that term.

INDIVIDUAL RESPONSIBILITIES

During the three years the S.E.S. course has been taught, the following individual requirements have been agreed upon by students and teachers:

1) to work within the framework of the individual committee
2) to be responsible for reading of germane books and articles
3) to construct case studies involving situations within the environment

As indication of progress in meeting the requirements, each student keeps a folder in the classroom; the folder is accessible to him at all times. In the folder the student places completed work, notes, instruction sheets, and other types of information pertinent to the completion of his tasks, both assigned and personal.

Student folders are evaluated twice during a semester by the teachers. By mid-term a folder is to contain summaries of five articles from newspapers, periodicals, television, or some other current information source; either a book report or a case study; and a listing of the student's completed and proposed activities. At the end of the semester, the folder must contain five additional article summaries; a case study or book report, whichever was not completed by mid-term; and a summation of all activities completed.

The contents of a student's folder reflect his individual effort and can be as extensive as he wishes to make it. In evaluating the folders, the teachers avoid looking at the bulk of a student's file and try to assess the quality of

the student's efforts. Folders are rated on an A-to-E scale. Meeting the minimum requirements constitutes a C rating.

COMMITTEE RESPONSIBILITIES

Much of a student's experience in S.E.S. comes from work on one of six class committees. The first semester that S.E.S. was offered, teachers and students established six committee areas, and these areas have been continued with each class. The committee areas are air, water, population, survey, commercial law, and public relations. Each student submits his first, second, and third choice of committee; assignments are made on the basis of these choices. Teachers report that students nearly always are assigned to either their first or second choice. Committees are usually composed of four or five students.

Each committee has the following responsibilities:

1) to make an audiovisual presentation concerning an environmental situation
2) to invite a guest to speak to the class about an environmental concern
3) to plan a field trip to a place having environmental interest
4) to conduct a study of a laboratory community within the framework of the committee purpose.

Throughout the semester teachers and students evaluate committee work. Evaluation forms are used to assess each committee function, such as arranging for a guest speaker or making an audiovisual presentation. Teachers weigh the student evaluations heavily in making their final grade assessments.

S.E.S. CURRICULUM

Pascover and Fort begin the S.E.S. class by exploring student concerns. In the first days of class, each student is asked to write a personal life-style statement, reflecting what the student hopes for in life, what he is concerned about, what he considers important. Examples of statements written by students are: "I am concerned about population growth"; I want a happy marriage"; and "I hope to make a lot of money." A list of all the statements is compiled, duplicated, and returned to class members so they can see what their classmates have written. Each student then selects the five statements he considers most desirable and ranks them in order of preference. Results are tabulated and recorded.

Nothing more is mentioned about this activity by the teachers until the end of the semester. At that time the list of personal statements is distributed to the students, and they are asked again to make a selection and ranking of five statements. These final selections are compared with the initial selection by the students as part of an informal evaluation of change in student awareness during the semester. The comparisons are discussed in class. Fort and Pascover report there is usually a substantial difference in the students' choices by the end of the semester, the later selections showing considerably more concern for environmental and human needs. While the teachers are reluctant to contribute the change solely to the S.E.S. class, they do feel the course is influential in expanding student awareness.

The first weeks of S.E.S. class time are spent in a variety of activities, focusing on increasing student interest in environmental concerns and providing the students with information necessary for their classwork. One kind of activity is "How To Do" sessions in which students learn skills that will be useful in class participation. For example, each committee has to present a guest speaker to the class in the course of the semester. So students are given information on "how to" contact speakers and make arrangements for their appearances, "how to" operate audiovisual equipment, "how to" order and show films, and "how to" plan field trips.

Guest speakers are an integral part of the S.E.S. curriculum. Over the semesters, speakers have included a United States Senator, the supervisor of rat control in Baltimore County, and representatives from Zero Population Growth, the Atomic Energy Commission, wildlife organizations, and local action groups like the Chesapeake Bay Area Committee. Fort and Pascover have also called upon the talents of some of their fellow teachers to talk about variety in life styles to the students. One Lansdowne teacher who served in the Peace Corps has spoken to the students about his experiences: another teacher, who is of Greek origin and who returns to Greece each year, shows slides of his native country and compares Greek and American ways of life.

About mid-term, committees begin to be released from the regular classroom activities to work on their committee projects. Committees are released when teachers conclude that they are sufficiently prepared to begin their tasks. Fort and Pascover know from experience that some committee projects require more time than others, so they try to get committees needing the most time released first. Because the survey committee requires considerable time for interviewing it is usually the first to go into the community. All committees are allowed at least four weeks, in class and out, to complete their work.

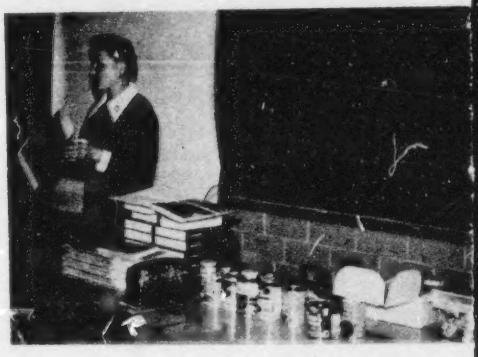
Before committees are released, they must determine their project goals and how they plan to accomplish them. Much of this direction is achieved during in-class committee meetings called "Irons in the Fire." Fort and Pascover feel class time is necessary for students to get organized and set up procedures.

THE COMMUNITY AS LABORATORY

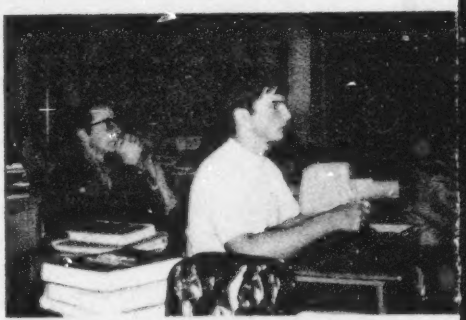
Each semester the S.E.S. committees chose a specific community in the

Field trip to Kennecott Copper Plant.

Committee members discuss plans with teacher.



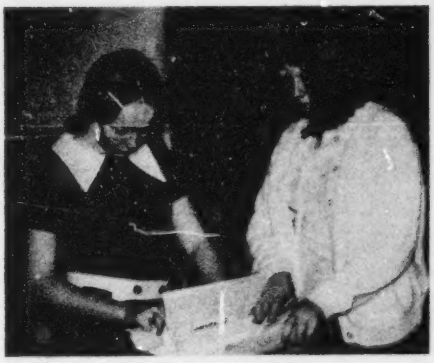
Guest speaker talks about foods of the present and future.



Previewing audio-visual presentation.

Students test water sample.

Committee prepares final report.



Students check folders.

The S.E.S. model.

Baltimore area to study in depth. The geographic location of Lansdowne Senior High School is ideal for implementing the concept of community laboratories, because it serves five distinct areas that were individual communities in the early history of Baltimore County. These areas still maintain a degree of independence and their original names. During the first five semesters of S.E.S., students explored each of these communities; in the sixth semesters Lansdowne Senior High itself was chosen as the community laboratory.

The committee work of students naturally varies somewhat with the community chosen and with the interests of the particular students. However, the following descriptions are representative of the kind of work committees might do in a community:

Air Committee

Members of the air committee attempt to determine the quality of air in the community. They choose specific sites, run tests on the air at these locations, and record their findings. If there are pollutants, they try to determine the source of contamination. They may also compare the air tests they make with national standards for clean air.

Water Committee

The basic function of the water committee is similar to that of the air committee. Committee members test water in selected sites and may also explore various parts of the community to look for dangerous sources of contamination in the city water supply. Residents of the area might be questioned to determine the level of public concern about water pollution.

Commercial Law Committee

The commercial law committee is concerned with the business and industry of the community. Sometimes committee members will visit a local businessman's association and question the members about what is being done to protect the environment in the community. They ask the men to evaluate the current condition of the local businesses: are they thriving or declining? what is the effect of outlying shopping centers on the central community? Students on this committee also study local and state laws to determine if business practices are in accordance with existing laws.

Population Committee

A prime concern of the population committee is to determine the population density in various locations within the community. Are there areas of overcrowding? Are there any relatively unpopulated areas within the city limits? The population committee may interview local residents to determine their level of concern about population and their awareness of what population changes could mean to the quality of life in the community.

Survey Committee

The function of the survey committee is primarily to determine the general concern of the citizenry for environmental matters. Interviewing and questionnaires are the main tools used by the survey committee. Students in different semesters have chosen various groups of people to survey. Often they select residents that live within a certain geographical area. One committee interviewed sixth graders in a local elementary school to assess the knowledge and concern among community children about environmental issues. The survey committee, as well as the other committees, locates persons or agencies within the community which could be used as resources for people desiring more information on particular environmental questions.

Public Relations Committee

Students on the public relations committee are responsible throughout the year for coordinating class activities. It is their job to make arrangements for speakers and field trips and to secure the necessary equipment for class presentations. They introduce guest speakers and project reports and lead follow-up discussions after the reports. The committee works with the other groups to assure that project goals are achieved.

COMMITTEE REPORTS

The highlight of each S.E.S. class comes when committees present their final community reports. Fort and Pascover place much emphasis on these reports and encourage students to put forth their best efforts by inviting guests to the presentations. Committee members are expected to be thoroughly prepared and to rehearse before they begin their report.

Each committee presents its findings and recommendations to an Ad Hoc Committee, which compiles them into a report. Copies of the report are made for all class members. Here are some excerpts from past S.E.S. reports:

> Coliform bacteria were found in a stream in the community by the Water Committee. Possible sources for this pollution may be pipes labeled Sanitary Sewer leading to the stream, domestic dogs, and cats from neighboring residential homes. To determine if these factors could have a harmful effect on the individuals of the community, you may contact the Baltimore Health Department, Water and Sewer Complaints (494-2762).
>
> The Commercial Committee evaluated the conditions of the business district as very good. However, they found that few businessmen were familiar with ordinances and laws that would help keep it that way....
>
> The Population Committee found the population density (number of people per area) to be very good. No overcrowded areas existed within the community. This situation could change rapidly with an unplanned increase of people into the community....

While the committees' conclusions generally have not been dramatic, the students feel their work has been useful. They have learned the correct procedures for studying the environment and they have reached accurate, objective conclusions. One committee hypothesized that a local brewery was polluting the air with emissions from the plant's smokestacks. However, in visiting the plant and testing the emissions, the students found the material being emitted was only steam. This kind of experience in getting at the facts has made students aware of the need for careful research when studying the environment.

TAKING THE FINDINGS TO THE COMMUNITY

A student's responsibility in S.E.S. does not end with his final committee report. The findings of the committees compiled by the Ad Hoc Committee are circulated to citizens of the community that was studied. Sometimes copies of the report are handed out to specific residents who are affected by the findings. Local citizen groups are provided with copies. Findings are printed in the Lansdowne school newspaper.

S.E.S. students also personally relate their findings to members of the community. Some members of the class have attended the local P.T.A. meeting, explained their findings, and presented recommendations for dealing with certain community problems. In other instances, students have gone directly to businessmen in the community whose business operations are causing environmental problems. They report their findings to the businessman and discuss the consequences with them.

Maryland Senator Charles Mathias has spoken to S.E.S. classes on several occasions. Encouraged by the student involvement he observed in the classes, Senator Mathias spoke on the floor of the Senate about the Lansdowne class. He commended the students for improving their own knowledge of the environment and for promoting public awareness of local conditions, saying, "Both the class and the community reap great benefits from such imaginative efforts." He concluded by asking that an article from the *Baltimore Evening Sun* about the S.E.S. class be read into the Congressional Record.

FINAL EVALUATION

A student's final grade for S.E.S. is determined by the teachers; however, Poscover and Fort give substantial weight to the evaluations students make of each other during class activities. These evaluations are considered along with the teachers' assessments of individual achievement, especially of student folders, to determine the grade that a student receives. Students are encouraged to discuss their grades with the teachers. Some students have requested these discussions and teachers have reported that the results were satisfactory and beneficial to both the teachers and students.

S.E.S. AFTER SIX SEMESTERS

No innovative course takes its place in a school curriculum without some difficulty. Teachers Fort and Pascover quickly point out that they have had their problems with S.E.S. The difficulty of getting two teachers scheduled for the same class at the same time has presented a recurrent administrative problem. Because S.E.S. is an elective course, it has sometimes been used as a student dumping ground. The number of field trips has been criticized for being expensive and for taking students away from other classes too often; as a result the number of trips has been reduced from six to three. Some students tend to misuse the time allowed for project work; other students have required more direction and structure than was originally planned by the teachers.

However, even with these difficulties, both Fort and Poscover remain enthusiastic about the course and feel it is serving an important function in the Lansdowne school curriculum. They also believe that a similar program would be feasible in most any high school, providing the course were planned, implemented, and evaluated by an interdisciplinary pair of teachers. According to the teachers, "The value of having the program team taught by a social studies teacher and a science teacher cannot be overstated."

After six semesters Fort and Poscover feel that the most important accomplishment of the S.E.S. program is the increased awareness of environmental concerns among some of the young people of Lansdowne. They have concluded that "...while the faddism of the initial environmental movement has abated, the need for rational and responsible environmental education has increased." In their Society-Environment-Science course, they strive to provide that kind of responsible environmental education.

FOR FURTHER INFORMATION, WRITE:

Thomas Fort, Chairman, Social Studies Dept.
Benjamin Poscover, Chairman, Science Dept.
Lansdowne Junior High School
3800 Hollins Ferry Road
Baltimore, Maryland 21227

For further information concerning the course, "Investigating Your Environment," developed by Biological Sciences Curriculum Study, write:

Dr. James Robinson
BSCS
University of Colorado
Boulder, Colorado 80302

Report Given By_____Committee

	Poor				Good
Introduction:					
1. Define the reason for showing presentation.	1	2	3	4	5
2. Make known things to watch for.	1	2	3	4	5
3. Create interest in coming presentation.	1	2	3	4	5
Program					
1. Was equipment in room?	1	2	3	4	5
2. Was presentation material in room?	1	2	3	4	5
3. Was equipment set up properly?	1	2	3	4	5
Follow-Up:					
1. Quality of summary of presentation.	1	2	3	4	5
2. Quality of follow-up discussion.	1	2	3	4	5
Overall Presentation	1	2	3	4	5

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ED 075 315 - EN[illegible] AND POPULATION. A SOURCEBOOK FOR TEACHERS. [illegible]-$.65. Hardcopy available from National Education [illegible]ciation, 1201 Sixteenth St., Washington, D.C. 20036 - $4.25 paper, $5.25 hard cover. The primary objective of this sourcebook is to help the teacher relate causes and consequences of population change to other social and environmental issues already being explored in the classroom.

ED 071 917 - USING THE SCHOOL AND COMMUNITY, AN ENVIRONMENTAL STUDY AREA, TEACHER'S HANDBOOK. 184 pp. MF-$.65, HC-$6.58. Designed to give the elementary teacher some ideas for using the school site and the community as an environmental study area, this guide offers activities and suggestions to explore all aspects of the environment.

ED 076 438 - EKISTICS. A GUIDE FOR THE DEVELOPMENT OF AN INTERDISCIPLINARY ENVIRONMENTAL EDUCATION CURRICULUM. 76 pp. MF-$.65, HC-$3.29. This guide was designed by the California State Department of Education to assist local schools in developing instruction in the wise use of natural resources and protection of the environment. The concepts developed go beyond the more traditional nature study and appreciation of the out-of-doors and consider the areas of social sciences, sciences, and humanities as well.

ED 075 190 - A COLLECTION OF RESOURCES FOR THE ENVIRONMENTALLY CONCERNED EDUCATOR. 39 pp. MF-$.65, HC-$3.29. This booklet is a mimeographed listing of information and resources in environmental education, intended for use by almost anyone with a general or specific interest in this subject.